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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,338	10/14/2005	Sergei Turitsyn	17653.2	2069

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EXAMINER	
BELLO, AGUSTIN	
ART UNIT	**PAPER NUMBER**
2613	
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02/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,338	TURITSYN ET AL.	
	Examiner	Art Unit	
	Agustin Bello	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-7 and 10-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-7 and 10-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 5-7, 13, 14, 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Bulow Patent Application Publication No. US 2003/0165341 A1).

Regarding claims 1, 6, 19, and 20, Bulow teaches a method of optically encoding data for transmission over a wavelength division multiplexed optical communications system comprising the steps of: generating a periodic series of optical pulses defining a series of time slots (i.e. each of the pulses shown in Figure 4a), wherein one pulse appears in each time slot (i.e. a pulse appears in the time slot from 0 to 1 and a pulse appears in the time slot from 1 to 2); filtering the pulses by way of a filter (reference "CF" in Figure 2a) to produce carrier pulses extending over more than one time slot (i.e. the filtered pulses being shown in Figure 4c); and modulating the pulses with data for transmission (paragraph [0005] – paragraph [0008], paragraph [0025]); wherein the filter gives rise to the pulses having a temporal profile with a minimum substantially in the center of each of the time slots adjacent to the time slot for that pulse (i.e. as seen in Figure 4c the filtered pulses are minimized at the midway point of the adjacent time slots) and with an oscillating tail that extends from the minimum to each of the time slots adjacent to the time slots having the minimum that are not the time slot for the pulse (i.e. as seen in Figure 4c the tail at

points 0.5 and 1.5 show a slight oscillation; furthermore, the pulse itself oscillates a particular optical frequency).

Regarding claim 3 and 7, Bulow teaches that the filtered carrier pulses have a substantially flat top spectral profile (as seen in Figure 4c).

Regarding claim 5, Bulow teaches that the step of modulating the pulses with data is performed before the filtering step (paragraph [0005] – paragraph [0008], paragraph [0025]).

Regarding claim 13, 18, and 21, Bulow teaches a method according to claim 1, wherein a first portion of the oscillating tail rises as it extends from the minimum to a local maximum and a second portion of the oscillating tail falls from the local maxima as it crosses into the time slots adjacent to the time slots having the minimum (as seen in Figure 4c).

Regarding claim 14, Bulow teaches a transmitter according to claim 6, wherein the modulating means is placed in the transmitter before the filter (inherent in paragraphs [0025]-[0027], [0038]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10-12, 15-17, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bulow in view of Jacobowitz (Patent No. 6,654,152 B2).

Regarding claim 10 and 22, Bulow differs from the claimed invention in that Bulow fails to specifically teach that the filter is detuned to optimize transmission performance. However,

Jacobowitz teaches that detuning a filter to optimize transmission performance is well known in the art (Figure 8, column 11 lines 31-46). One skilled in the art would have been motivated to detune the filter in Bulow as taught by Jacobowitz in order to compensate for factors such as the filter rolloff, signal spectral width, and changes in transmission line properties due to temperature, microbending, aging and other effects (column 1 lines 18-25 of Jacobowitz). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to detune the filter in Bulow as taught by Jacobowitz.

Regarding claims 11, 17, and 24, Bulow differs from the claimed invention in that Bulow fails to specifically teach that the filter is a super-Gaussian 6^{th} order bandpass filter. However, super-Gaussian 6^{th} order bandpass filter are well known in the art and Official Notice is given to that effect. One skilled in the art would have been motivated to employ a super-Gaussian 6^{th} order bandpass filter in the apparatus of Bulow in order to have a high suppression ration and to improve the chromatic dispersion tolerance. Furthermore, Bulow suggests the use of Gaussian filters (paragraph [0041]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a super-Gaussian 6^{th} order bandpass filter in the apparatus of Bulow

Regarding claims 12, 16, and 23 Bulow differs from the claimed invention in that Bulow fails to specifically teach that modulating the pulses with data for transmission is performed by a Mach Zehnder modulator. However, Mach Zehnder modulators are well known in the art and Official Notice is given to that effect. One skilled in the art would have been motivated to employ a Mach Zehnder modulator in order to take advantage of the modulation speeds

achievable they produce. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a Mach Zehnder modulator in that apparatus of Bulow.

Regarding claim 15, Bulow teaches a transmitter according to claim 14, but differs from the claimed invention in that Bulow fails to specifically teach that an amplifier is placed between the modulating means and the filter. However, the use of amplifiers is well known in the art and Official Notice is given to that effect. One skilled in the art would have been motivated to employ an amplifier placed between the modulating means and the filter in order to boost the level of the signal prior to filtering. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to place an amplifier between the modulating means and the filter in Bulow.

Response to Arguments

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agustin Bello/

Primary Examiner
Art Unit 2613